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Avian Predation Concerns on Lower Columbia River

What is the problem?

Two populations of anadromous salmonids in the Columbia Basin are listed as endangered under the Endangered Species Act, four are listed as threatened, seven are proposed to be listed within the year, and two are under review. Humans have interfered with the life cycle of salmon through harvest, barriers to passage, water withdrawals for farms and cities, and habitat degradation. All contribute to salmon declines. The role of avian predation in the decline of listed, wild salmon populations recently became a focus of recovery efforts because of expanding seabird populations in the estuary.

Avian predation near Rice Island is unusually high, which presents a serious problem to salmon restoration efforts. Scientists estimate that a colony of about 10,000 nesting pairs of Caspian terns on Rice Island, at rivermiles 21-22 on the Columbia River, is consuming 6 million to 25 million salmonid smolts (migrating juvenile salmon and steelhead) per year.

Who is working on the problem?

The members of the Caspian Tern (Avian Predation) Working Group--the National Marine Fisheries Service, the U.S. Fish and Wildlife Service, the Columbia River Intertribal Fish Commission (CRITFC), the U.S. Army Corps of Engineers, the Bonneville Power Administration, the Oregon Department of Fish and Wildlife, the Washington Department of Fish and Wildlife, and researchers from CRITFC and Oregon State University--are working together to solve the problem.

What is their plan?

Steps will be taken to relocate the Caspian tern colony on the Columbia River before the beginning of next spring's juvenile fish migration, if an Environmental Assessment released on Oct. 29 by the U.S. Army Corps of Engineers is approved. In the EA, currently within the 30-day public review period, the Corps and other federal agencies outline a plan to relocate the colony of Caspian terns that calls Rice Island its home during the nesting season. The agencies plan to try various methods to attract the birds to East Sand Island, at rivermile 5 in the Columbia River. Timing is critical, as juvenile salmonids begin migrating downriver in April.

The group does not intend to eliminate the Rice Island Caspian tern colony. Instead, they hope to relocate the colony by developing other nesting habitat at East Sand Island, and thus attract the birds to the lower estuary. Encouraging nesting on East Sand Island is a short-term plan. The island was used as a nesting site by Caspian terns from 1984 through 1986. Nesting gulls and cormorants presently use East Sand Island. Before they came to the Columbia River, the terns nested at Willapa Bay and Grays Harbor, Washington. Although Rice Island was created in 1962 from material dredged from the Columbia River, the birds did not use it for nesting until 1986. The colony has grown dramatically since that time.

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On Rice Island, terns, gulls and cormorants nest only on the downstream (western) tip of the 230-acre island. Neither has chosen to nest in the remaining area, comprised of relatively small vegetated areas and 150-plus acres of bare sand created from dredge material disposal over the years.

Why do they think "relocating" the colony will help?

Researchers believe the Caspian tern diet at Rice Island is composed of 70 percent to 80 percent salmonids. Also, their studies indicate that far more salmonids are consumed by cormorants nesting on Rice Island than cormorants that nest on East Sand Island. They estimate that salmonids are less available to predators near East Sand Island, for several reasons. Near East Sand, there are more species of fish available as a food supply for the birds (marine fish move up into the Columbia), and birds can also forage offshore. Based on these facts, researchers believe that terns relocated to East Sand Island will, in similar behavior to that of cormorants, eat less salmon.

And who is doing what?

The Working Group's plan, as outlined in the EA, proposes work on East Sand and Rice islands, and on Miller Sands Spit. The Corps would modify the habitat on the eastern end of East Sand Island by removing current vegetation to create about 16 acres of bare sand, the terns' favored nesting habitat. The Corps would seed vegetation on 200 acres at Rice Island, where the terns currently nest on bare sand, and also seed 100 acres on nearby Miller Sands Spit. These actions are part of a pilot study to determine the success and value of relocation options. Other federal agencies plan to participate in related actions. Decoys and tern colony recordings will be used at East Sand Island to help attract returning terns there next spring. If these preferred passive actions do not work, the agencies have included fallback options to discourage returning terns from nesting at Rice Island or Miller Sands Spit. Options being considered include plastic fencing throughout the colony site or active harassment of terns.

What's the timeline?

Both habitat actions (revegetating and creating bare sand) must be completed by March, because terns begin returning to the Columbia in late March to early April. They begin nesting and laying eggs in early May. If relocation is not successful before nesting begins, the agencies have agreed that all harassment actions will stop for 1999.

At what cost?

The total cost is an estimated $500,000, with the majority of that money funding ongoing monitoring and evaluation. The work done to create bare sand on East Sand Island is estimated to cost $50,000. Seeding Rice Island and Miller Sands Spit is estimated to cost $60,000. The monitoring and evaluation work consumes most of the rest of the money, including purchase of decoys and sound equipment. The agencies will evaluate the relocation effort's success in two ways: first, did the physical relocation work; and second, did the relocation reduce bird predation on salmonid smolts migrating through the area to the Pacific Ocean.

What is in the Environmental Assessment and how do I comment on it?

The Environmental Assessment (EA) addresses potential environmental effects of proposed actions that could be taken before the next juvenile fish passage season, beginning in April 1999. The public is asked to comment on the EA and the actions being considered.

A copy of the EA is available in public libraries and on the Internet at www.nwp.usace.army.mil/PE/E/enhome.htm or may be requested by contacting Lynne Hamilton, (503) 808-4772. Questions or comments about the EA should be directed to Hamilton or Bob Willis, (503) 808-4703. Comments on the EA must be mailed by Nov. 30, 1998, to: District Engineer, U.S. Army Corps of Engineers, Portland District, Attn: CENWP-EC-E, P.O. Box 2946, Portland, OR, 97208-2946. Anyone commenting on the EA should note the public notice number (CENWP-EC-E-98-08), the title (Caspian Tern Relocation, Columbia River, Clatsop County, Oregon) and issue date (Oct. 29, 1998).

Wasn't Rice Island created by the Corps using dredged material?

Yes. Rice Island was created in 1962 from material dredged from the Columbia River. The birds did not use it for nesting until 1986.

Is the Corps still using Rice Island to deposit dredged material, and how can that be justified?

As the largest remaining upland site in that reach of the river with the capacity to hold large amounts of dredged material, Rice Island is still being used to dispose of dredged material. In September, the Dredge Oregon, operated by the Port of Portland, deposited just over 1 million cubic yards (1,029,000 cy) of material removed from Harrington Sump onto a prepared area on Rice Island, between the bird colonies and previously deposited material. While disposal does continue at Rice Island, it will not contribute to the overall avian predation problem. The area will be seeded this winter, which will discourage birds from nesting there next spring. The tern colony uses only eight acres for nesting.

And what will be done in the long term?

The agencies represented on the Caspian Tern Working Group are committed to finding solutions that will increase the numbers of juvenile salmonids that reach the ocean while still protecting the Caspian terns. Avian predation is one of a host of factors affecting salmon recovery. The development of long-term strategies addressing all the mortality factors affecting salmon, including predation, hydropower development, habitat loss, harvest and hatcheries is on the regional agenda.